



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
PO Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,005	02/20/2002	Stan Wojciak	LC-301/PCT/US/CON	4721

7590 06/16/2003

LOCTITE CORPORATION  
1001 Trout Brook Crossing  
Rocky Hill, CT 06067

EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/078,005

Applicant(s)

WOJCIAK ET AL.

Examiner

Susan W Berman

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1,4-14 and 16-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-14 and 16-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1711

*Response to Amendment*

The amendments to the claims filed 04-02-03 overcome the rejections under 35 USC 112 set forth in the last Office Action.

*Response to Arguments*

Applicant's arguments for reconsideration have been considered but have not been found persuasive for the following reasons. Each of Mikune et al and Attarwala et al disclose curable compositions comprising cyanoacrylate monomers. It is agreed that Mikune et al teach adding heat stabilizers but do not mention the instantly claimed sulfur containing compounds. It is agreed, as pointed out by applicant, that Attarwala et al teach including the same sulfur compounds as instantly claimed to improve the thermal resistance to degradation of the cured adhesive formulation. Attarwala et al do not teach photocurability; however, Mikune et al are relied upon for teaching cyanoacrylate compositions containing metallocene and photoinitiator for photocuring. Attarwala et al are relied upon for teaching the addition of the instantly claimed sulfur containing compounds to enhance thermal properties. The sulfur containing compounds disclosed by Attarwala et al for increasing storage stability of the monomer compositions are not included in the Markush group of sulfur-containing compounds set forth in the instant claims. Thus, it is agreed that Attarwala et al do not teach that the instantly claimed sulfur compounds would be expected to increase the storage stability of the monomer compositions disclosed by Mikune et al. However, Attarwala et al do provide motivation for adding the sulfur-containing compounds corresponding to those instantly claimed to the cyanoacrylate compositions disclosed by Mikune et al because Attarwala et al teach that these compounds enhance the thermal properties of cured cyanoacrylate polymers. A person of ordinary skill in the art would have been motivated by a reasonable expectation of success in obtaining this advantage in the compositions disclosed by Mikune et al because cured cyanoacrylate polymers would be expected to be equivalent whether cured thermally, as taught by Attarwala et al, or by irradiation, as taught by Mikune et al, in the absence of evidence to the contrary. It

Art Unit: 1711

is the examiner's position that the teaching of Attarwala et al provides more specific motivation than simply "obvious to try" with respect to the analogous cyanoacrylate monomer compositions and resulting cured polymers taught by Mikune et al. Furthermore, it is not necessary that patentee teach the same advantage as set forth by applicant to provide motivation. The rejections of record are not considered to be based on hindsight reconstruction since the motivation to combine the teachings of the references is clearly set forth in the references for the reasons set forth in the rejections of record and discussed herein above. Therefore, the rejections under 35 USC 103(a) set forth in the Office Action are maintained.

The evidence for unexpected results presented in the Declaration of Shabbir Attarwala has been considered but is considered to be unpersuasive for the following reasons. The experiments conducted appear to show an unexpected improvement in storage stability of the compositions containing a cyanoacrylate monomer, polymethylmethacrylate thickener, ferrocene and Irgacure 819 when ethylene sulfite is added. This improvement is discussed on page 12 of the specification. Attarwala et al teach adding sulfur compounds such as a sulfonic acid and sulfur dioxide, rather than the instantly claimed sulfur compounds, to increase shelf stability. Attarwala et al teach adding the instantly claimed sulfur compounds are added to prevent decomposition of the cured cyanoacrylate polymers while not affecting storage stability or cure speed (see Table 1). Thus the results reported in the Declaration are considered to be unexpected results. The formulations set forth in the Declaration are, however, not considered to be commensurate in scope with the claims intended to be patented on the basis of the showing of unexpected results. None of the instant claims recites the presence of the polymethylmethacrylate thickener. It is not clear whether or how the presence of thickener affects the shelf stability of the composition. It is not clear from the data supplied whether the unexpected results relied upon would be obtained in the absence of the added thickener. Claims 28, 29 and 36, wherein the higher viscosities are included as ranges for viscosity, imply the presence of a thickener, however, there is no mention of thickener or amount of thickener employed. Claim 27 and claim 36, wherein the viscosity is 1-3 or 1-15 cps, would not be

Art Unit: 1711

expected to contain a thickener and are, therefore, outside the scope of the showing of unexpected results in the Declaration. There is no evidence of record to show that unexpected results are also obtained in the absence of 10% polymethylmethacrylate in the cyanoacrylate monomer.

Applicant's arguments with respect to the secondary references, Gatechair et al and Coover et al, have been considered but have not been found persuasive for the following reasons. Gatechair et al are relied upon for teaching that the photoinitiators set forth in the cited claims are well known in the art as being suitable cleavage type photoinitiators that would be expected to be suitable photoinitiators to employ with ferrocene in the compositions disclosed by Mikune et al. Since Mikune et al disclose ferrocene in combination with a cleavage-type photoinitiator, it is the examiner's position that one skilled in the art would have been motivated to select the photoinitiators taught by Gatechair et al to use with ferrocene or analogous metallocene initiators in the photoinitiator systems taught by Mikune et al. Coover et al are relied upon for teaching that suitable uses for cyanoacrylate compositions corresponding to those set forth in the instant claims are known in the art.

With respect to the double patenting rejections of record, applicants are prepared to submit a terminal disclaimer without conceding the propriety of the bases for the double patenting rejections. It is agreed that submission of a proper terminal disclaimer would remove the obviousness type double patenting rejections of record.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites an "article assembled with a composition according to claim 1". However, in order to obtain

Art Unit: 1711

an article, the composition would necessarily be cured (or polymerized) to provide an adhesive that assembles the article, as set forth in the method of claim 24. An article assembled with the uncured composition would not be expected to retain its integrity (or it's assembly).

*Claim Rejections - 35 USC § 102/103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-7, 11-14, 16-22, 27-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikune et al (US 5,824,180 or EP 0 769 721 A1) in view of Attarwala et al (5,328,944). Mikuni et al disclose adhesive compositions comprising an alpha-cyanoacrylate and a metallocene or a mixed catalyst comprising a metallocene and a cleavage-type photoinitiator. The mixed catalyst can be a metallocene and an acylphosphine oxide photoinitiator. APO is used with ferrocene in Example 5 of US '180. Irgacure 184 is used with ferrocene in Example 6 of US '180. APO is used with ferrocene in Examples 6, 15, 23, 28, 34, 39, 44, 50 and 72-101 of EP '721. Addition of heat stabilizers is taught (column 7, line 35 of US '180 or page 10, line 59, of EP '721). With respect to claims 6, 7, 11, 12 and 13, Mikune et al disclose metallocenes encompassed by those instantly claimed. With respect to claim 14, several of the recited photoinitiators are disclosed by Mikuni et al. With respect to claim 16, it is noted that Mikune et al teach that the cyanoacrylate compositions "may, if necessary, contain one or more additives such as ... thickening agents,...fillers...". See page 10.

Attarawala et al teach that it is known to employ sulfur containing compounds corresponding to those set forth in the instant specification in cyanoacrylate adhesive compositions in order to enhance the thermal resistance of the cured polymer.

Art Unit: 1711

It would have been obvious to one skilled in the art to employ a metallocene catalyst further comprising cleavage-type photoinitiator as taught by Mikune et al. Mikune et al teach that the photocurability can be greatly improved by incorporating a cleavage-type photoinitiator into the composition (Abstract of EP '721). In US '180, Mikune et al teach that the mixture of metallocene and cleavage photoinitiator provides equivalent photocurability and curing time to a metallocene used alone. It would have been obvious to one skilled in the art to include a sulfur-containing compound to enhance thermal resistance, as taught by Attarwala et al, as the heat stabilizer in the compositions disclosed by EP '721. One of ordinary skill in the art at the time of the invention would have been motivated to do so by the teaching of Attarwala et al that sulfur-containing compounds enhance the thermal resistance of cured cyanoacrylate adhesives. US '180 or EP '721 each provides motivation by teaching addition of heat stabilizers to the disclosed cyanoacrylate adhesive compositions. Thus, one of ordinary skill in the art at the time of the invention would have been motivated to employ the heat stabilizers taught by Attarwala et al for alpha-cyanoacrylate adhesive compositions by a reasonable expectation of providing cured products stabilized to avoid thermal instability.

With respect to claims 20-21, It would have been obvious to one skilled in the art at the time of the invention to employ a mixture of Irgacure 184 and an acylphosphine oxide as the cleavage-type photoinitiator in the compositions disclosed by Mikuni et al because Mikuni et al teach that the phenylpropanone and acylphosphine oxide photoinitiators are equivalent for use as cleavage-type photoinitiators and also teach that the photoinitiators can be used alone or in mixtures (page 10, lines 19-43). It would further have been obvious to one skilled in the art at the time of the invention to determine the optimum amounts of cyanoacrylate, ferrocene and photoinitiator required to obtain the desired cure from the teachings of Mikune et al, in the absence of evidence to the contrary.

With respect to claims 27-29 and 36: Applicant states in the instant specification, on page 11, line 11, to page 12, line 3, that "ordinarily cyanoacrylate compositions free of added thickener or viscosity

Art Unit: 1711

modifier are low viscosity formulations (such as in the range from 1 to 3 cps)". Also see Hiraiwa 4,818,325 for a teaching of the low viscosity of 2-cyanoacrylate compositions. It is the examiner's position that the compositions disclosed by Mikune et al would inherently be low viscosity formulations having viscosities within the recited ranges in the claims because the cyanoacrylate compositions appear to be free of thickener or viscosity modifier. Alternatively, especially with respect to the viscosity of 1-15 cps in claim 27 or claim 36 or the viscosity of 1-3 cps in claim 36, it would have been obvious to one skilled in the art at the time of the invention to omit any thickeners or fillers from the compositions taught by Mikune et al. Mikune et al provide motivation by teaching that such additives can be used "if necessary" to heighten the viscosity of the composition. One skilled in the art at the time of the invention would have been motivated by an expectation of providing low viscosity formulations in the absence of thickening agents or fillers. There is no evidence of record showing unexpected results obtained by limiting the viscosity as set forth in the instant claims. With respect to the viscosity from 100-300 cps in claim 28 or claim 36 or the viscosity from 600-1000 cps in claim 29 or claim 36: It would have been obvious to one skilled in the art at the time of the invention to add thickening agents or fillers that function as thickening agents to the cyanoacrylate compositions taught by Mikune et al in order to heighten the viscosity of the compositions. Mikune et al provide motivation by teaching that thickening agents can be added to heighten the viscosity of the composition. It would have been obvious to one skilled in the art at the time of the invention to determine the optimum viscosity of a cyanoacrylate composition taught by Mikune et al required for a particular bonding application. Cyanoacrylate compositions for bonding applications are well known in the art and determination of the viscosity required for bonding applications is considered to be within the skill of one having ordinary skill in the relevant art.



Art Unit: 1711

Claims 1, 4-7, 11-14, 16-22, 27-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikune et al (EP 721) in view of Attarwala et al, as applied to claims 1, 4-7, 11-14, 16-22, 27-34 and 36 above, and further in view of Gatechair et al (4,707,432). The disclosures of Mikune et al and Attarwala et al are discussed above. Gatechair et al teach the use of a photoinitiator and a ferrocenium salt in a free radical polymerizable compositions. The photoinitiators disclosed include acetophenones, ketals, aryl glyoxalates, acylphosphine oxides and aromatic halonium salts, including several photoinitiators recited in instant claim 14. Esters of (meth)acrylic acid are taught as suitable free radically polymerizable materials. Cationically polymerizable materials are also taught. Irradiation with light from 200 to 600 nm is taught. Gatechair et al teach that the blend of photoinitiators improves light sensitivity of compositions where greater sensitivity to visible light is required.

It would have been obvious to one skilled in the art at the time of the invention to employ the cleavage photoinitiators taught by Gatechair et al as being useful in combination with a ferrocene component as the cleavage photoinitiator in the compositions disclosed by Mikune et al in combination with Attarwala et al, as set forth above. Mikune et al teach adding a cleavage-type photoinitiator to a metallocene to improve the photocurability of the cyanoacrylate composition. Gatechair et al provide motivation to substitute the disclosed cleavage photoinitiators for those specifically taught by Mikune et al by teaching that they are equivalent in function when used with ferrocene, a well-known metallocene. It would have been obvious to one skilled in the art to select a photoinitiator having sensitivity to visible light from those taught by Gatechair et al because Gatechair et al teach that the combination of free radical curing agents and ferrocenium salts provides increased sensitivity to visible light and a significant improvement in cure (column 1, lines 38-51).

Claims 23-26 and 30-32 are rejected under 35 U.S.C. 103(a) as obvious over Mikune et al in view of Attarwala et al, as applied to claims 1, 4-7, 11-14, 16-22, 27-34 and 36 above, and further in view of

Art Unit: 1711

H.W. Coover et al "Cyanoacrylate Adhesives". The disclosures of Mikune et al and Attarwala et al are discussed above. Coover et al teach that cyanoacrylate adhesives are useful for bonding electronic components and medical and dental devices, among other uses. It would have been obvious to one skilled in the art at the time of the invention to employ compositions comprising cyanoacrylate monomers selected from those disclosed by Mikune et al in combination with Attarwala et al for the uses discussed by Coover et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of obtaining useful electronic components, medical or dental devices, as taught by Coover et al.

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 4-14 and 16-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 11-14, 16-34 of copending Application No. 10/094816 in view of Attarwala et al '944. The claims of Serial No. 10/094816 recite compositions comprising the same components as set forth in the instant claims except for the sulfur compound. Attarwala et al teach that it is known to employ sulfur containing compounds in cyanoacrylate adhesive composition in order to enhance the thermal resistance of the cured polymer. It would have been obvious to one skilled in the art to include a sulfur-containing compound, as taught by Attarwala et al, in

Art Unit: 1711

the compositions claimed in SN '816. One of ordinary skill in the art at the time of the invention would have been motivated to do so by the teaching of Attarwala et al that sulfur-containing compounds enhance the thermal resistance of cured cyanoacrylate adhesives.

This is a provisional obviousness-type double patenting rejection.

Claims 1, 4-14, 16-22 and 26-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5 922 783 in view of Attarwala et al. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. The claims of US '783 recite compositions comprising an alpha-cyanoacrylate, a metallocene and a photoinitiator. Attarwala et al teach that it is known to employ sulfur containing compounds in cyanoacrylate adhesive composition in order to enhance the thermal resistance of the cured polymer. It would have been obvious to one skilled in the art to include a sulfur-containing compound, as taught by Attarwala et al, in the compositions claimed in SN '816. One of ordinary skill in the art at the time of the invention would have been motivated to do so by the teaching of Attarwala et al that sulfur-containing compounds enhance the thermal resistance of cured cyanoacrylate adhesives. The viscosities recited in instant claims 27-29 and 36 are considered to be inherent properties of the compositions claimed in US '783. Compositions encompassed by the comprising language of the claims would be expected to provide different viscosities varying from very low viscosities when only cyanoacrylate monomers are present to higher viscosities when thickening agents or viscosity modifiers are present. Addition of thickening agents or viscosity modifiers is taught in column 5 of US '783.

Claims 1, 4-14, 16-22 and 26-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5 922 783 and Attarwala et al and further in view of Mikune et al. Although the conflicting claims are not identical, they are not

Art Unit: 1711

patentably distinct from each other for the following reasons. The scope of the claims overlaps since the 2-cyanoacrylate component, the metallocene component and the photoinitiator component are the same. See the rejection over US '783 and Attarwala et al set forth above. The claims of US '783 do not recite viscosities or mention thickening agents or viscosity modifiers; however, the comprising language of the claimed compositions encompasses such additives. Addition of thickening agents or viscosity modifiers is taught in column 5 of US '783. Mikune et al teach adding thickening agents or fillers to heighten the viscosity of analogous cyanoacrylate compositions. Therefore, It would have been obvious to one skilled in the art at the time of the invention to add thickening agents to the composition disclosed by US '783 provide heightened viscosity, as taught by Mikune et al in analogous compositions.

Claims 23-26 and 30-32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5 922 783 in view of Attarwala et al and further in view of H.W. Coover et al "Cyanoacrylate Adhesives". See the rejection over US '783 and Attarwala et al set forth above. Coover et al teach that cyanoacrylate adhesives are useful for bonding electronic components and medical and dental devices, among other uses. It would have been obvious to one skilled in the art at the time of the invention to employ compositions selected from those disclosed by Mikune et al comprising cyanoacrylate monomers for the uses discussed by Coover et al.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing

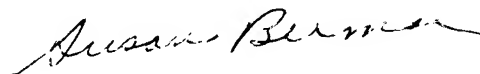
Art Unit: 1711

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.



Susan W Berman  
Primary Examiner  
Art Unit 1711

SB  
June 12, 2003